UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,651	09/30/2003	Kourosh Gharachorloo	60963-0013	8972

24341 7590 05/16/2006

MORGAN, LEWIS & BOCKIUS, LLP.
2 PALO ALTO SQUARE
3000 EL CAMINO REAL
PALO ALTO, CA 94306

EXAMINER	
LIN, SHEW FEN	

ART UNIT	PAPER NUMBER
2166	

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,651	GHARACHORLOO ET AL.	
	Examiner	Art Unit	
	Shew-Fen Lin	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/30/2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/15/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detail Action

a. This action is responsive to communications: application filed on 9/30/2003.

b. Claims 1-27 are pending in this Office Action. Claims 1, 14, 25, 26, and 27 are independent claims.

Priority

Applicant's claim for the benefit of a prior-filed application 60/491507, filed on 7/31/2003 under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.

Information Disclosure Statement

The information disclosure statement (IDS) received on 6/15/2004 is compliance with the provisions of 37 CFR 1.97. Accordingly, the Information Disclosure Statement is being considered by the Examiner.

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show necessary label of "148" in Fig. 1 as described in the specification (page 15, paragraph [0054], line 5. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet

should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 and 25 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

MPEP 2106 IV. B.2. (b)

A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. Schrader, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan (discussed in i) below), or (B) be limited to a practical application within the technological arts.

Claims 1 and 25 in view of the above-cited MPEP section, are not statutory because they merely recite functional descriptive material without including any hardware. The use of a computer or a data processor has not been indicated being used to perform the steps. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101 nor is there a transformation of something physical to another state or thing.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-8, 10-11, 13-15, 17, 19-22, and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Badue et al. (Badue, C., Ribeiro-Neto, B., Baeza-Yates, R., and Ziviani, N. "Distributed query processing using partitioned inverted files", SPIRE 2001, hereinafter referred as Badue).

As to claim 1, Badue discloses a document search system (query processing in a distributed text database, abstract), comprising:

a document index comprising a plurality of document index partitions (local index partition or global index partition, page 1, right column, paragraph 3, lines 4-7), each partition comprising a subset of the document index; each document index partition mapping terms to documents (inverted file technique is used to index document, page 3, section 3.2);

a partition index that maps a specified term to a subset of the document index partition, wherein the document index partitions in the subset each map the specified term to at least one document containing the specified term (map term to each partition, page 4, left column, paragraph 3, Figure 4);

a balancer (broker, Figure 2) configured to receive a search query having a set of terms , comprising one or more terms, to search the partition index so as to identify a subset of the document index partitions that potentially include documents that satisfy the search query(broker process accepts queries, distributes the query to the server, page 3, left column, paragraph 2, Figure 3) and to direct the search query to only the identified subset of the document index partitions (the broker process determines and sends the

server processes hold inverted lists relative to the query, page 5, right column, paragraph 5, lines 1-5, page 6, left column, paragraph 6).

As to claim 2, Badue discloses wherein the partition index maps the specified term to an empty subset when the specified term is not contained within the partition index (direct query term to corresponding partition, i.e. no search is done when term is not found in the index, page 8, left column, paragraph 4).

As to claim 3, Badue discloses including one or more servers configured to search the document index partitions in the subset for terms in the search query (page 3, left column, paragraph 1, Figure 2).

As to claim 4, Badue discloses including a plurality of index search servers (Figure 2), each index search server configured to search at least a portion of at least one document index partition of the plurality of document index partitions so as to identify documents containing specified terms (page 3, right column, paragraph 2).

As to claim 5, Badue discloses wherein the balancer is configured to direct the search query to only the servers (broker sends query to server, page 3, left column, paragraph 2), of the one of more servers, that are configured to search document index partitions included in the identified subset (only to the processors which store the terms, page 6, left column, paragraph 6).

As to claim 7, Badue discloses wherein the balancer (broker) comprises: a processor; a communications interface; and a memory (PC with processor, memory, and network interface, page 7 right column, paragraph 1) comprising: communications procedures for receiving the search query, and for transmitting search results (page 3, left column, paragraph 2); and a balancer filter comprising: mapping instructions for searching the partition index for each term in the search query so as to generate a map for each said term (determine which partition relative to query term, page 5, right column, paragraph 5, lines 2-4); combining instructions, utilized when the search query comprises a plurality of terms and the first instructions generate a plurality of maps, for generating a single map from the plurality of maps (create subquery that composed the terms which is sent to the partition, page 5, right column, paragraph 5, lines 5-7); and identifying instructions for identifying a subset of the document index partitions in accordance with the map or single map; and distribution instructions for sending the search query to each document index partition, if any, in the identified subset (query are sent only to the identify partition, page 6, left column, paragraph 6).

As to claim 8, Badue discloses wherein the partition index is configured to map the specified term to a set of document index sub-partitions (item A is sub-partition of partition P1, Figure 4), each document index sub-partition corresponding to a subset of the documents indexed by a respective document index partition of the plurality of document index partitions (sub-partition A including document index for document 3,4 and 6, Figure 4); wherein each document index sub-partition to which the specified term is mapped by the partition index maps the specified term to at least one document having

the specified term (inverted list to index terms to document, page 3, right column, paragraph 2).

As to claim 10, Badue discloses wherein a plurality of document index sub-partitions correspond to each document index partition of the plurality of document index partitions (Figure 4); and the balancer (broker) is configured so to search the partition index so as to obtain a map for each term of the search query the map identifying a subset of the document index sub-partitions (determine which processor (sub-partition) hold the query term and direct the query/subquery to the processor that contain the query term, page 5, right column, paragraph 5, page 6, left column, paragraph 6, page 7, left column , paragraph 3), wherein each document index sub-partition in the subset contains at least one document having the specified term

As to claim 11, Badue discloses a plurality of index search servers (Figure 2, servers P1 to P5), each index search server configured to search at least one document index sub-partition so as to identify documents containing specified terms (inverted file is used to index term and document collection, page3, right column, paragraph 2).

As to claim 13, Badue discloses wherein the balancer is configured to direct the search query to only the index search servers (broker sends query to server, page 3, left column, paragraph 2), of the plurality of index search servers, that are configured to search document index sub-partitions included in the identified subset of document index

sub-partitions (only to the processors which store the terms, page 6, left column, paragraph 6).

As to claim 14, Badue discloses a method of searching for documents, comprising:

receiving a search query containing a set of search terms, the set of search terms having at least one search term (receive query from client, Figure 2);

searching for the set of search terms in a partition index so as to identify a subset of a plurality of document index partitions (broker process determines which server processes hold inverted lists relative to the query terms, Page 5, right column, paragraph 5); and

searching, in only those document index partitions in the identified subset, for documents containing the set of search terms (retrieve document relative the subquery, page 5, right column, paragraph 5) ;

wherein the partition index maps any specified term to a respective subset of the document index partitions (broker map the search terms to partition), wherein each document index partition in the respective subset maps the specified term to at least one document containing the specified term (server index query term to document collection, page 3, right column, paragraph 2).

As to claim 15, Badue discloses wherein the searching in the document index partitions in the identified subset includes directing the search query to one or more servers configured to search the document index partitions in the identified subset (send

query/subquery to the respective server identified by broker, page 5, right column, paragraph 5, line 2-5).

As to claim 17, Badue discloses wherein the partition index is configured to map a specified term in the search query to a set of document index sub-partitions (determine which processor (sub-partition) hold the query term, page 5, right column, paragraph 5), each document index sub-partition corresponding to a subset of the documents indexed by a respective document index partition of the set of document index partitions (Figure 4); wherein each document index sub-partition to which the specified term is mapped by the partition index maps the specified term to at least one document having the specified term (Figure 4).

As to claim 19, Badue discloses including searching, in only those document index sub-partitions in the identified set of document index sub-partitions, for documents containing the set of search terms (query are sent only to the processors (sub-partitions) which store query term, page 6, left column, paragraph 6).

As to claim 20, Badue discloses identifying the subset of document index partitions based on the identified set of document index sub-partitions (sub-partition A will identify partition P1, Figure 4).

As to claim 21, Badue discloses wherein a plurality of document index sub-partitions correspond to each document index partition of the plurality of document index

partitions (Figure 4); and the method includes searching the partition index so as to obtain a map for each term of the search query, the map identifying a subset of the document index sub-partitions (determine which processor (sub-partition) hold the query term and direct the query/subquery to the processor that contain the query term, page 5, right column, paragraph 5, page 6, left column, paragraph 6, page 7, left column , paragraph 3), wherein each document index sub-partition in the subset maps the specified term to at least one document having the specified term

As to claim 22, Badue discloses including searching, in only those document index sub-partitions in the identified subset of document index sub-partitions, for documents containing the set of search terms (query are sent only to the processors (sub-partitions) which store query term, page 6, left column, paragraph 6).

As to claim 24, Badue discloses including directing the search query only to index search servers, of a plurality of index search servers, that are configured to search document index sub-partitions included in the identified subset of document index sub-partitions (send query/subquery to the respective server identified by broker, page 5, right column, paragraph 5, line 2-5).

As to claim 25, Badue discloses a document search system(query processing in a distributed text database, abstract), comprising:

a document index comprising a plurality of document index partitions, each partition comprising a subset of the document index (local index partition or global index

partition, page 1, right column, paragraph 3, lines 4-7); each respective document index partition comprising a plurality of document index sub-partitions (sub-partitions, A-C for P1, Figure 4), each document index sub-partition comprising a subset of the respective document index partition; each document index sub-partition configured to map terms to documents (sub-partition A index document 3,4, and 6, Figure 4);

a plurality of partition indexes, each respective partition configured to maps a specified term to a subset of the document index sub-partitions of a corresponding document index partition, wherein the document index sub-partitions in the subset each map the specified term to at least one document containing the specified term (map term to each sub-partition, page 4, left column, paragraph 3, Figure 4);

a plurality of balancers (broker, Figure 2), each associated with a respective partition index of the plurality of partition indexes; each respective balancer configured to receive a search query having a set of terms, comprising one or more terms, to search the partition index associated with the respective balancer so as to identify a subset of the document index sub-partitions that potentially include documents that satisfy the search query (broker process accepts queries, distributes the query to the server, page 3, paragraph 2, Figure 3), and to direct the search query to only the identified subset of the document index sub-partitions (the broker process determines and sends the server processes (sub-partition) hold inverted lists relative to the query, page 5, right column, paragraph 5, lines 1-5, page 6, left column, paragraph 6).

As to claim 26, Badue discloses a method of searching for documents (query processing in a distributed text database, abstract), comprising:

receiving a search query containing a set of search terms, the set of search terms having at least one search term (receive query from client, Figure 2);

searching for the set of search terms in a partition index so as to identify a subset of a plurality of document index sub-partitions (broker process determines which server processes (sub-partition) hold inverted lists relative to the query terms, Page 5, right column, paragraph 5); and

searching, in only those document index sub-partitions in the identified subset, for documents containing the set of search terms (retrieve document relative the subquery, page 5, right column, paragraph 5);

wherein the partition index maps any specified term to a respective subset of the document index sub-partitions (broker map the search terms to processor), wherein each document index sub-partition in the respective subset maps the specified term to at least one document containing the specified term (server index query term to document collection, page 3, right column, paragraph 2).

As to claim 27, Badue discloses a method of searching for documents (query processing in a distributed text database, abstract), comprising:

receiving a search query containing a set of search terms, the set of search terms having at least one search term (receive query from client, Figure 2);

searching for the set of search terms in each of a plurality of partition indexes, each partition index corresponding to a document index partition of a document index (local index partition or global index partition, page 1, right column, paragraph 3, lines 4-7), wherein the search of each respective partition index identifies a subset of a plurality

of document index sub-partitions of the document index partition corresponding to the respective partition index (broker process determines which server processes (sub-partition) hold inverted lists relative to the query terms, Page 5, right column, paragraph 5); and

searching, in only those document index sub-partitions in the identified subsets, for documents containing the set of search terms (retrieve document relative the subquery, page 5, right column, paragraph 5);

wherein each respective partition index maps any specified term to a respective subset of the document index sub-partitions of a corresponding document index partition(broker map the search terms to processor), wherein each document index sub-partition in the respective subset maps the specified term to at least one document containing the specified term (server index query term to document collection, page 3, right column, paragraph 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6, 9, 12, 16, 18, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Badue as applied to claims 1 and 14 above, and further in view of Agarwal et al. (US Patent 6,816,853).

As to claims 6, 9, 16, and 18, Badue discloses wherein the balancer (broker) is configured so that when the search query includes a plurality of distinct terms, the balancer searches the partition index and send the query or subqueries to the processors having the query terms (page 7, left column, paragraph 2-3). Badue does not explicitly disclose using a Boolean operation to generate a single map for query terms.

Agarwal discloses using bitmapped index and a bitmapped AND operation to identify the partitioned database object that satisfy the query terms (Figure 4,column 8, lines 4-10).

It would have been obvious to a person of ordinary skill in the art at the time of invention was made to modify Badue's disclosure to include Boolean (AND, OR,...) to combine the index of the different terms as taught by Agarwal for the purpose of helping to identify the sets of partition (rowset) that satisfy the multiple query terms (column 8,

lines 10-15, Agarwal). The skilled artisan would have been motivated to improve the invention of Badue per the above such that the combined map can be used to direct the query to the corresponding partition (column 8, lines 10-15, Agarwal).

As to claims 12 and 23, Badue does not disclose wherein the map identifying the subset comprises a set of bits, each respective bit of the map corresponds to a respective subset of the index search servers, and the balancer is configured to direct the search query to only index search servers corresponding to bits in the map having a first predefined value.

Agarwal discloses using bitmap index to indicate the state of a partition (row). Each bit in bitmap index corresponds to a separate row (partition) in table which the value "1" represent a row having the value and value "0" indicate the other way (column 5, lines 1-7).

It would have been obvious to a person of ordinary skill in the art at the time of invention was made to modify Badue's disclosure to use bitmap to indicate if the state of query tem in each partition as taught by Agarwal for the purpose of identifying which partition contains the query term (Figure 3C, Agarwal). The skilled artisan would have been motivated to improve the invention of Badue per the above such that broker (balancer) direct the query term to the partition/server based on the bit value.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 14, 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Choy et al. (US Patent 5,551,027, hereinafter referred as Choy).

As to claim 1, Choy discloses a document search system (multi-tiered indexing methods for query database), comprising:

a document index comprising a plurality of document index partitions (Figure 1), each partition comprising a subset of the document index; each document index partition mapping terms to documents (map data object to the local index, Figure 1);

a partition index (coarse global index, Figures 1 and 3, column 11, lines 6-8) that maps a specified term to a subset of the document index partition, wherein the document index partitions in the subset each map the specified term to at least one document containing the specified term (Figure 3, column 7, lines 15-20);

a balancer (coarse global index is used to route an access request to the target partitions, column 11, lines 6-8) configured to receive a search query having a set of terms , comprising one or more terms, to search the partition index so as to identify a subset of the document index partitions that potentially include documents that satisfy the search query(identify PID (Partition ID) from coarse global index for the query term

(partition keys), AND/OR/Sort maybe apply to PID, column 11, lines 20-32) and to direct the search query to only the identified subset of the document index partitions (sent the query to each identified partition, column 11, lines 37-39, receive and merge results, column 11, lines 49-50).

As to claim 14, claim 14 is essentially the same as claim 1 except that it sets forth the claimed invention as a method rather than a computer program product. Relevant teachings in the Choy patents have been identified for each of the steps of claim 14 in the rejection of claim 1. Claim 14 is therefore rejected under the same rationale given to claim 1 above.

As to claims 25 and 26, refer to and "As to claim 1" and "As to claim 14" presented earlier in this Office Action by Choy. Further, Choy teaches that the indexing can be multi-level scheme, i.e. it can be applied to global index, partition index, sub-partition index, and so on (column 14, lines 8-14).

As to claim 27 refer to and "As to claim 1" and "As to claim 14" presented earlier in this Office Action by Choy. Further, Choy teaches that the indexing can be multi-level scheme, i.e. it can be applied to global index, partition index, sub-partition index, and so on (column 14, lines 8-14) and multiple global indexes can be used (column 4, lines 57-65).

Related Prior Arts

The following list of prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- A. MacFarlane, J. McCann, and S. Roberson, "Parallel search using partitioned inverted files" In Proceedings of the 7th International Symposium on String Processing and Information Retrieval, pages 209-220, Spain, September 2000.
- B.S. Jeong and E. Omiecinski, "Inverted file partitioning schemes in multiple disk systems" IEEE Transactions on Parallel and Distributed System", 6(2):142-153, February 1995
- Allen, Terry Dennis et al., US 20040148273 A1,"Method, system, and program for optimizing database query execution", (...data pages is mapped to one or more physical partitions, and a data partitioned secondary index partition associated with each of the one or more physical partitions is identified).
- Croisettier, RamanaKumari M. et al.,US 20040148293 A1, "Method, system, and program for managing database operations with respect to a database table", (...maintaining index nodes fora a table in separate index partitions in order to improve database performance).
- Johnson; Theodore, US 6216125 B1, "Coarse indexes for a data warehouse", (...A coarse database index, and system and method of use therefor, that will quickly indicate which data partitions of a table contain

a given key. Once the target data partitions are located, the exact record locations can be found using traditional indexes).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shew-Fen Lin whose telephone number is 571-272-2672. The examiner can normally be reached on 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shew-Fen Lin
Patent Examiner

Art Unit 2166
May 4, 2006

MOHAMMAD ALI
PRIMARY EXAMINER